ABSTRACT

The present invention is directed to an active handle assembly for use in a bidirectional steerable surgical instrument having a deflectable distal end. Typically, the surgical instrument includes a handle component which the user manipulates to cause a distal end of the instrument to deflect. The distal end comprises an end tip portion of a shaft which extends outwardly from the handle. A control mechanism is disposed within the handle and extends through the shaft for selectively controlling the direction and degree of deflection at the distal end. For example, one exemplary control mechanism uses control or steering wires to deflect the distal end. The active counterforce mechanism according to the present invention is designed to be used in combination with the control mechanism and provides a force which counters the return to center force generated by the deflection of the shaft at the distal end thereof. Optimally, the active counterforce mechanism balances the return to center force across the instrument's deflection range in distal and proximal directions. This results in the user experiencing minimal, if any, resistance during the manual manipulation of the control mechanism.